

43



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,926	09/28/2001	Peter Kamvysselis	EMS-02003	4208

26339 7590 02/09/2005

PATENT GROUP
 CHOATE, HALL & STEWART
 EXCHANGE PLACE, 53 STATE STREET
 BOSTON, MA 02109

EXAMINER

SHINGLES, KRISTIE D

ART UNIT	PAPER NUMBER
----------	--------------

2141

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/965,926

Applicant(s)

KAMVYSSELIS, PETER

Examiner

Kristie Shingles

Art Unit

2141

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 63-96 is/are pending in the application.
- 4a) Of the above claim(s) 1-62 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 63-96 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1-62 are cancelled. Claims 63-96 are pending.

Priority

1. Acknowledgment is made of applicant's claim for domestic priority under 35 U.S.C. 120. The certified copy has been filed in parent Application No. 09/940,903, filed on 8/28/2001.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: *130*. Corrected drawing sheets, or amendment to the specification to add the reference character(s) in the description, are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2141

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 63-96 are rejected under 35 U.S.C. 102(e) as being anticipated by *Wahl et al* (USPN 6,324,654).

a. Per claim 63, *Wahl et al* teach a method for performing data recovery in a computer system comprising:

- sending data from a first storage device to at least one other secondary storage device, said data being sent in a plurality of data packets, each of said plurality of packets being associated with a sequence number having a first predetermined value (col.2 lines 47-65, col.3 line 21-col.4 line 45, col.5 line 16-col.6 line 57, col.7 lines 18-35, col.9 lines 30-39, col.10 lines 25-36 and col.21 lines 14-32; a plurality of data packets are transmitted from primary storage device to secondary storage device, associated with sequence numbers for chronological ordering in the writelog journal device);
- upon determining that the data has been successfully stored on all of said at least one other storage device, deleting journal entries in a sender corresponding to said data (col.7 lines 18-35, col.10 lines 44-64 and col.19 lines 53-61; upon receiving and acknowledgment receipt confirming successful storage on the secondary storage device, the writelog allows for the data entries to be updated, overwritten and removed to provide more space in the writelog journal device); and
- upon determining a failure in connection with synchronizing data between a first storage device and at least one other secondary storage device, deleting journal entries in each of said at least one other secondary storage device, and resending unsynchronized journal entries from the sender (Abstract, col.3 line 45-col.4 line 45, col.11 line 13-col.12 line 31, col.13 lines 16-30, col.18 lines 13-44, col.18-line 63-col.19 line 39 and col.23 line 64-col.24 line 24; failure recovery is provisioned with updates, retransmission and synchronization for unsynchronized data by implementation of remote mirroring in the writelog journal device and with the secondary storage devices).

Art Unit: 2141

b. **Claim 80** differs from claim 63 only in statutory subject matter, contains limitations substantially equivalent to claim 63 and is therefore rejected under the same basis.

c. **Per claim 64, Wahl et al** teach the method of Claim 63, further comprising: determining at least one journal entry in said sender that is an earliest journal entry included in said sender's journal entries; and resending data starting with data of said earliest journal entry (col.7 lines 4-35, col.9 line 61-col.10 line 10, col.10 lines 39-36, col.19 line 40-col.20 line 27 and Figure 2; the writelog device organizes data in a time-sequenced circular queue to maintain chronological order, data is consequently transferred with the oldest/earliest first).

d. **Claim 81** is substantially equivalent to claim 64 and is therefore rejected under the same basis.

e. **Per claim 65, Wahl et al** teach the method of Claim 64, further comprising: determining an age of each journal entry included in said sender using sequence numbers such that the earliest journal entry has a lowest sequence number of all journal entries included in said sender (col.7 lines 18-35, col.9 lines 39-40 and col.21 lines 39-50; timestamps and age of data entries in the writelog journal device are maintained).

f. **Claim 82** is substantially equivalent to claim 65 and is therefore rejected under the same basis.

g. **Per claim 66, Wahl et al** teach the method of Claim 65, wherein said sender is a WAN blade coupled to said first storage device (col.4 lines 33-42, col.5 lines 15-25 and col.10 lines 37-43; the remote data mirroring system comprises a primary storage device over a WAN with other computer systems and storage devices).

h. **Claim 83** is substantially equivalent to claim 66 and is therefore rejected under the same basis.

i. **Per claim 67, Wahl et al** teach the method of Claim 66, wherein when a failure is determined, journal entries in each of said secondary storage device are determined to be unsynchronized (col.3 line 66-col.4 line 32, col.9 line 61-col.10 line 24, col.12 lines 12-31 and col.18 line 28-col.19 line 17; for failure recovery, the state of writelog journal entries are determined to be unsynchronized, thus updates and refresh operations are implemented to synchronize the data with the other storage devices).

j. **Per claim 68, Wahl et al** teach the method of Claim 67, wherein a failure prevents a consistency group of storage devices from synchronizing data, said first storage device and said at least one other secondary storage device being included in said consistency group (col.6 lines 15-40, col.11 line 32-col.12 line 31, col.18 line 63-col.19 line 39 and col.23 line 44-col.24 line 23; recovery modes for various failure events are provisioned, a network failure would prevent the logical group of storage devices from synchronizing data).

k. **Claim 85** is substantially equivalent to claim 68 and is therefore rejected under the same basis.

l. **Claims 69, 70, 84, 86 and 87** are substantially equivalent to claim 67 and are therefore rejected under the same basis.

m. **Per claim 71, Wahl et al** teach the method of Claim 63, wherein said failure is a link failure occurring when at least one communication link fails (col.11 lines 36-40, col.13 lines 16-30, col.14 line 23-col.15 line 12, col.20 lines 39-51 and col.23 lines 31-54; recovery provision for loss of the network communication link or network failure).

Art Unit: 2141

n. **Claim 88** is substantially equivalent to claim 71 and is therefore rejected under the same basis.

o. **Per claim 72, Wahl et al** teach the method of Claim 71, further comprising: detecting a link failure by failure of a linked device to response to a direct inquiry (**col.10 lines 20-64; confirmation messages are sent to acknowledge the receipt of updates from the remote mirror daemon, the data in the writelog device is not overwritten until the confirmation messages are received, thus a lack of acknowledgment from one of the linked storage devices would be an indication of a certain link failure which would subsequently be detected by the system**).

p. **Claim 89** is substantially equivalent to claim 72 and is therefore rejected under the same basis.

q. **Claims 73, 74, 90 and 91** are substantially equivalent to claim 71 and are therefore rejected under the same basis.

r. **Per claim 75, Wahl et al** teach the method of Claim 74, further comprising: in response to detecting said failed link, journaling writes to the WAN blade rather than the primary storage device, said WAN blade acting as a buffer to compensate for said failed link (**col.4 lines 33-45, col.8 lines 27-40, col.11 lines 32-43, col.12 lines 46-61, col.23 lines 31-54 and col.24 lines 8-67; in the remote data mirroring system, in disaster recovery situations, journaling writes are made to the a remote recovery site at a different server on the WAN**).

s. **Claim 92** is substantially equivalent to claim 75 and is therefore rejected under the same basis.

t. **Per claim 76, *Wahl et al* teach the method of Claim 75, wherein, upon said WAN blade having a journal that overflows, said WAN blade not acknowledging write operations by the primary storage device (col.3 lines 8-38, col.4 lines 33-45, col.7 line 11-col.8 line 2, col.18 lines 45-62 and col.24 lines 44-67; remote data mirroring system operates in bypass mode when the a writelog journal device overflow occurs).**

u. **Claims 77, 93 and 94 are substantially equivalent to claim 76 and are therefore rejected under the same basis.**

v. **Per claim 78, *Wahl et al* teach the method of Claim 63, wherein in response to the sequence number in the sender becoming equal to a second predetermined value different from the first predetermined value, acknowledging receipt of the blocks of data corresponding to the packets of data that are assigned the first predetermined value as the sequence number and sending the packets of data that are assigned the first predetermined value as the sequence number to said at least one other secondary storage device (col.7 lines 18-35, col.7 line 47-col.8 line 27, col.11 line 44-col.12 line 38, col.19 line 40-col.20 line 38 and col.21 lines 7-32; in the writelog journal device data is organized according to sequence number, with the use of multiple writelog devices, depending on the age of the data, the data may be sent to another storage device).**

w. **Claim 95 is substantially equivalent to claim 78 and is therefore rejected under the same basis.**

x. **Per claim 79, *Wahl et al* teach the method of Claim 78, wherein said acknowledging includes sending an acknowledgement to a host in the computer system sending data to the first storage device prior to said data actually being transferred to the at least one**

Art Unit: 2141

secondary storage device (col.21 lines 7-32; an acknowledgement message is sent prior to the child remote mirror daemon receiving data from the child primary mirror daemon).

y. **Claim 96** is substantially equivalent to claim 79 and is therefore rejected under the same basis.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. *Barber et al* (USPN 6,546,428) disclose methods, systems and computer program products for transferring a file using a message queue.
- b. *Ofek* (USPN 6,044,444) discloses a remote data mirroring having pre-selection of automatic recovery or intervention required when a disruption is detected.
- c. *Autrey et al* (USPN 6,732,125) disclose a self-archiving log structured volume with intrinsic data protection.
- d. *Yanai et al* (USPN 6,502,205) disclose an asynchronous remote data mirroring system.
- e. *Chandra et al* (USPN 6,058,389) disclose an apparatus and method for message queuing in a database system.
- f. *Martin et al* (USPN 5,632,027) disclose a method and system for mass storage device configuration management.
- g. *Mwaura* (USPN 6,779,002) discloses a computer software framework and method for synchronizing data across multiple databases.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kristie Shingles whose telephone number is 571-272-3888. The examiner can normally be reached on Monday-Friday 8:30-6:00.

Art Unit: 2141

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on 571-272-3880. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kristie Shingles

Examiner

Art Unit 2141

kds


RUPAL DHARIA
SUPERVISOR